



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/886,633	06/21/2001	Mark L. Yarkosky	1654	6146
28005	7590	06/13/2007		
SPRINT			EXAMINER	
6391 SPRINT PARKWAY			FOX, BRYAN J	
KSOPHT0101-Z2100				
OVERLAND PARK, KS 66251-2100			ART UNIT	PAPER NUMBER
			2617	
			MAIL DATE	DELIVERY MODE
			06/13/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 2, 7, 8, 11, 19 and 20 are rejected under 35 U.S.C. 102(a) as being anticipated by Kim et al (WO 01/31804 A1).

Regarding claim 7, Kim et al disclose an apparatus for receiving and amplifying a pilot signal from a specified base station and transmitting it into an area where pilot pollution occurs (see page 3, line 15 – page 4, line 13), which reads on the claimed, “method for forcing a hand-off within a cellular wireless system on crossing a boundary from a first geographical area to a second geographical area.” The receiving antenna has a high gain and a narrow horizontal beam width and is structured to receive the signal from the specified base station (see page 3, lines 15-22) and amplifies only the signals from a specified base station in the case of pilot pollution (see page 4, lines 7-13), which reads on the claimed, “receiving a preferred pilot signal in a directional receiving antenna from a selected base station antenna that provides wireless coverage in the second geographical area.” The signal is amplified (see page 3, line 23 – page 4, line 1 and figure 2), which reads on the claimed, “amplifying the preferred pilot signal to provide a boosted pilot signal.” The signal is transmitted to the mobile station via the transmitting antenna (see page 4, lines 2-4), and the signal is transmitted into an area

Art Unit: 2617

where a number of base stations co-exist (see page 4, lines 7-13 and figure 3), which reads on the claimed, "transmitting the boosted pilot signal within the second geographical area and substantially only along a boundary between the first and second geographical areas from a directional transmitting antenna."

Regarding claim 8, Kim et al disclose the receiving antenna has a high gain and a narrow horizontal beam width and is structured to receive the signal transmitted from the specified base station (see page 3, lines 15-22), which reads on the claimed, "aligning the directional receiving antenna with the selected base station in the cellular wireless network to selectively receive the preferred pilot signal, wherein the selected base station transmits the preferred pilot signal."

Regarding claim 11, Kim et al disclose an apparatus for receiving and amplifying a pilot signal from a specified base station and transmitting it into an area where pilot pollution occurs (see page 3, line 15 – page 4, line 13), which reads on the claimed, "apparatus for forcing a hand-off within a cellular wireless system on crossing a boundary from a first geographical area to a second geographical area." The receiving antenna has a high gain and a narrow horizontal beam width and is structured to receive the signal from the specified base station (see page 3, lines 15-22) and amplifies only the signals from a specified base station in the case of pilot pollution (see page 4, lines 7-13), which reads on the claimed, "directional receiving antenna for receiving a preferred pilot signal from a selected base station antenna that provides wireless coverage in the second geographical area." The signal is amplified (see page 3, line 23 – page 4, line 1 and figure 2), which reads on the claimed, "radio-frequency

Art Unit: 2617

amplifier having an input and an output, wherein the input accepts the preferred pilot signal from the directional receiving antenna and the output provides a boosted pilot signal." The signal is transmitted to the mobile station via the transmitting antenna (see page 4, lines 2-4), and the signal is transmitted into an area where a number of base stations co-exist (see page 4, lines 7-13 and figure 3), which reads on the claimed, "directional transmission antenna that accepts the boosted pilot signal from the output of the radio-frequency amplifier and transmits the boosted pilot signal within the second geographical area and substantially only along a boundary between the first and second geographical areas."

Regarding claim 19, Kim et al disclose an apparatus for receiving and amplifying a pilot signal from a specified base station and transmitting it into an area where pilot pollution occurs (see page 3, line 15 – page 4, line 13), which reads on the claimed, "method for overcoming pilot pollution in a geographical area within a cellular wireless system." The receiving antenna has a high gain and a narrow horizontal beam width and is structured to receive the signal from the specified base station (see page 3, lines 15-22) and amplifies only the signals from a specified base station in the case of pilot pollution (see page 4, lines 7-13), which reads on the claimed, "receiving a preferred pilot signal in a directional receiving antenna from a selected base station." The signal is amplified (see page 3, line 23 – page 4, line 1 and figure 2), which reads on the claimed, "amplifying the preferred pilot signal to provide a boosted pilot signal." The signal is transmitted to the mobile station via the transmitting antenna (see page 4, lines 2-4), and the signal is transmitted into an area where a number of base stations co-exist

Art Unit: 2617

(see page 4, lines 7-13 and figure 3), which reads on the claimed, “transmitting the boosted pilot signal within the geographical area, wherein the boosted pilot signal dominates over a polluting pilot signal within the geographical area.”

Regarding claim 2, Kim et al disclose the receiving antenna has a high gain and a narrow horizontal beam width and is structured to receive the signal transmitted from the specified base station (see page 3, lines 15-22), which reads on the claimed, “aligning the directional receiving antenna with the selected base station in the cellular wireless network to selectively receive the preferred pilot signal, wherein the selected base station transmits the preferred pilot signal.”

Regarding claim 20, Kim et al disclose an apparatus for receiving and amplifying a pilot signal from a specified base station and transmitting it into an area where pilot pollution occurs (see page 3, line 15 – page 4, line 13), which reads on the claimed, “apparatus for overcoming pilot pollution in a geographical area within a cellular wireless system.” The receiving antenna has a high gain and a narrow horizontal beam width and is structured to receive the signal from the specified base station (see page 3, lines 15-22) and amplifies only the signals from a specified base station in the case of pilot pollution (see page 4, lines 7-13), which reads on the claimed, “directional receiving antenna for receiving a preferred pilot signal from a selected base station antenna that provides wireless coverage in the second geographical area.” The signal is amplified (see page 3, line 23 – page 4, line 1 and figure 2), which reads on the claimed, “radio-frequency amplifier having an input and an output, wherein the input accepts the preferred pilot signal from the directional receiving antenna and the output provides a

Art Unit: 2617

boosted pilot signal, wherein the strength of the boosted pilot signal is adjusted to dominate over a polluting pilot signal within the geographical area." The signal is transmitted to the mobile station via the transmitting antenna (see page 4, lines 2-4), and the signal is transmitted into an area where a number of base stations co-exist (see page 4, lines 7-13 and figure 3), which reads on the claimed, "transmission antenna that accepts the boosted pilot signal from the output of the radio frequency amplifier and transmits the boosted pilot signal within the geographical area."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 6, 10, 14 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al in view of Sabat, Jr. et al. (US20020016170A1).

Regarding claims 3, 6, 10 and 14, Kim et al fail to teach the use of a surface acoustic wave device.

In a similar field of endeavor, Sabat, Jr. et al. disclose the use of a SAW filter and amplifier (see page 7, paragraph 74).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Kim et al to include the SAW filter and amplifier disclosed by Sabat Jr. et al. in order to take advantage of the sharp filtering operation of the saw filter as suggested by Sabat Jr. et al. in page 7, paragraph 74.

Regarding claim 21, Kim et al disclose an apparatus for receiving and amplifying a pilot signal from a specified base station and transmitting it into an area where pilot pollution occurs (see page 3, line 15 – page 4, line 13), which reads on the claimed, “method for overcoming pilot pollution in a geographical area within a cellular wireless system.” The receiving antenna has a high gain and a narrow horizontal beam width and is structured to receive the signal from the specified base station (see page 3, lines 15-22) and amplifies only the signals from a specified base station in the case of pilot pollution (see page 4, lines 7-13), which reads on the claimed, “aligning a directional receiving antenna with a selected base station in the cellular wireless network to selectively receive a preferred pilot signal, wherein the selected base station transmits the preferred pilot signal; receiving the preferred pilot signal in a directional receiving antenna within the geographical area from the selected base station.” The signal is amplified (see page 3, line 23 – page 4, line 1 and figure 2), which reads on the claimed, “selectively amplifying the preferred pilot signal...to provide a boosted pilot signal.” The signal is transmitted to the mobile station via the transmitting antenna (see page 4, lines 2-4), and the signal is transmitted into an area where a number of base stations co-exist (see page 4, lines 7-13 and figure 3), which reads on the claimed, “transmitting the boosted pilot signal within the geographical area, wherein the boosted pilot signal dominates over a polluting pilot signal within the geographical area.” Kim et al fail to expressly disclose the use of a surface acoustic wave device.

In a similar field of endeavor, Sabat, Jr. et al. disclose the use of a SAW filter and amplifier (see page 7, paragraph 74).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Kim et al to include the SAW filter and amplifier disclosed by Sabat Jr. et al. in order to take advantage of the sharp filtering operation of the saw filter as suggested by Sabat Jr. et al. in page 7, paragraph 74.

Claims 5, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al in view of Trompower et al.

Regarding claims 5, 12, 13 Kim et al fail to disclose the use of a Yagi antenna.

In a similar field of endeavor, Trompower et al discloses the use of a Yagi antenna (see column 9, lines 16-24).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Kim et al to include the above Yagi antenna disclosed by Trompower et al. in order to take advantage of the benefits of a Yagi antenna such as higher gain in the desired direction.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al in view of Judson (US007054662B2).

Regarding claim 9, Kim et al fail to expressly disclose aligning the directional transmitting antenna to selectively transmit the boosted pilot signal within the second geographical area; and adjusting the boosted pilot signal to have a signal strength within the first geographical area that is substantially less than an intended pilot signal for the first geographical area.

In a similar field of endeavor, Judson discloses an antenna beam pattern is narrowed to focus the signal transmission energy in the direction of the user, rather than spreading the signal transmission energy across the entire width of the sector (see column 5, lines 17-32).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Kim et al with Judson to include the above aligning of the transmit antenna in order to avoid spreading the energy of the signal across the entire sector as suggested by Judson (see column 5, lines 17-32).

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al in view of Judson, and further in view of Sabat Jr, et al.

Regarding claim 17, Kim et al disclose an apparatus for receiving and amplifying a pilot signal from a specified base station and transmitting it into an area where pilot pollution occurs (see page 3, line 15 – page 4, line 13), which reads on the claimed, “method for forcing a hand-off within a cellular wireless system on crossing a boundary from a first geographical area to a second geographical area.” The receiving antenna has a high gain and a narrow horizontal beam width and is structured to receive the signal from the specified base station (see page 3, lines 15-22) and amplifies only the signals from a specified base station in the case of pilot pollution (see page 4, lines 7-13), which reads on the claimed, “aligning a directional receiving antenna with a selected base station antenna that provides wireless coverage in the second geographical area in the cellular wireless network to selectively receive a preferred pilot

Art Unit: 2617

signal, wherein the selected base station transmits the preferred pilot signal; receiving the preferred pilot signal from the base station.” The signal is amplified (see page 3, line 23 – page 4, line 1 and figure 2), which reads on the claimed, “selectively amplifying the preferred pilot signal...to provide a boosted pilot signal.” The signal is transmitted to the mobile station via the transmitting antenna (see page 4, lines 2-4), and the signal is transmitted into an area where a number of base stations co-exist (see page 4, lines 7-13 and figure 3), which reads on the claimed, “transmitting the boosted pilot signal within the second geographical area and substantially only along a boundary between the first and second geographical areas from a directional transmitting antenna.” Kim et al fail to expressly disclose aligning the directional transmitting antenna to selectively transmit the boosted pilot signal within the second geographical area; and adjusting the boosted pilot signal to have a signal strength within the first geographical area that is substantially less than an intended pilot signal for the first geographical area.

In a similar field of endeavor, Judson discloses an antenna beam pattern is narrowed to focus the signal transmission energy in the direction of the user, rather than spreading the signal transmission energy across the entire width of the sector (see column 5, lines 17-32).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Kim et al with Judson to include the above aligning of the transmit antenna in order to avoid spreading the energy of the signal across the entire sector as suggested by Judson (see column 5, lines 17-32). The combination of Kim et al and Judson fails to disclose the use of a Surface Acoustic Wave device.

In a similar field of endeavor, Sabat, Jr. et al. disclose the use of a SAW filter and amplifier (see page 7, paragraph 74).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Kim et al to include the SAW filter and amplifier disclosed by Sabat Jr. et al. in order to take advantage of the sharp filtering operation of the saw filter as suggested by Sabat Jr. et al. in page 7, paragraph 74.

Claims 18 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al in view of Trompower et al, and further in view of Sabat Jr. et al.

Regarding claim 18, Kim et al disclose an apparatus for receiving and amplifying a pilot signal from a specified base station and transmitting it into an area where pilot pollution occurs (see page 3, line 15 – page 4, line 13), which reads on the claimed, “apparatus for forcing a hand-off within a cellular wireless system on crossing a boundary from a first geographical area to a second geographical area.” The receiving antenna has a high gain and a narrow horizontal beam width and is structured to receive the signal from the specified base station (see page 3, lines 15-22) and amplifies only the signals from a specified base station in the case of pilot pollution (see page 4, lines 7-13), which reads on the claimed, “receiving antenna for receiving a preferred pilot signal from a selected base station antenna that provides wireless coverage in the second geographical area.” The signal is amplified (see page 3, line 23 – page 4, line 1 and figure 2), which reads on the claimed, “radio-frequency amplifier having an input and an output, wherein the input accepts the preferred pilot signal from

Art Unit: 2617

the...receiving antenna and the output provides a boosted pilot signal.” The signal is transmitted to the mobile station via the transmitting antenna (see page 4, lines 2-4), and the signal is transmitted into an area where a number of base stations co-exist (see page 4, lines 7-13 and figure 3), which reads on the claimed, “transmission antenna that accepts the boosted pilot signal from the output of the radio-frequency amplifier and transmits the boosted pilot signal within the second geographical area and substantially only along a boundary between the first and second geographical areas.” Kim et al fail to disclose the use of Yagi antennas.

In a similar field of endeavor, Trompower et al discloses the use of a Yagi antenna (see column 9, lines 16-24).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Kim et al to include the above Yagi antenna disclosed by Trompower et al. in order to take advantage of the benefits of a Yagi antenna such as higher gain in the desired direction. The combination of Kim et al and Trompower et al fails to disclose the use of a surface acoustic wave device.

In a similar field of endeavor, Sabat, Jr. et al. disclose the use of a SAW filter and amplifier (see page 7, paragraph 74).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Kim et al to include the SAW filter and amplifier disclosed by Sabat Jr. et al. in order to take advantage of the sharp filtering operation of the saw filter as suggested by Sabat Jr. et al. in page 7, paragraph 74.

Regarding claim 22, Kim et al disclose an apparatus for receiving and amplifying a pilot signal from a specified base station and transmitting it into an area where pilot pollution occurs (see page 3, line 15 – page 4, line 13), which reads on the claimed, “apparatus for overcoming pilot pollution in a geographical area within a cellular wireless system.” The receiving antenna has a high gain and a narrow horizontal beam width and is structured to receive the signal from the specified base station (see page 3, lines 15-22) and amplifies only the signals from a specified base station in the case of pilot pollution (see page 4, lines 7-13), which reads on the claimed, “receiving antenna for receiving a preferred pilot signal from a selected base station.” The signal is amplified (see page 3, line 23 – page 4, line 1 and figure 2), which reads on the claimed, “radio-frequency amplifier having an input and an output, wherein the input accepts the preferred pilot signal from the...receiving antenna and the output provides a boosted pilot signal, wherein the strength of the boosted pilot signal is adjusted to dominate over a polluting pilot signal within the geographical area.” The signal is transmitted to the mobile station via the transmitting antenna (see page 4, lines 2-4), and the signal is transmitted into an area where a number of base stations co-exist (see page 4, lines 7-13 and figure 3), which reads on the claimed, “transmission antenna that accepts the boosted pilot signal from the output of the radio-frequency amplifier and transmits the boosted pilot signal within geographical area.” Kim et al fail to disclose the use of Yagi antennas.

In a similar field of endeavor, Trompower et al discloses the use of a Yagi antenna (see column 9, lines 16-24).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Kim et al to include the above Yagi antenna disclosed by Trompower et al. in order to take advantage of the benefits of a Yagi antenna such as higher gain in the desired direction. The combination of Kim et al and Trompower et al fails to disclose the use of a surface acoustic wave device.

In a similar field of endeavor, Sabat, Jr. et al. disclose the use of a SAW filter and amplifier (see page 7, paragraph 74).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Kim et al to include the SAW filter and amplifier disclosed by Sabat Jr. et al. in order to take advantage of the sharp filtering operation of the saw filter as suggested by Sabat Jr. et al. in page 7, paragraph 74.

Response to Arguments

Applicant's arguments filed December 4, 2006 have been fully considered but they are not persuasive.

The Applicant argues Kim fails to disclose transmitting the boosted pilot signal within the second geographical area and substantially only along a boundary between the first and second geographical areas from a directional antenna. The Examiner respectfully disagrees. The Examiner maintains the repeater that boosts a pilot signal into an area where multiple base stations exist reads on the broadest reasonable interpretation in light of the specification of transmitting the boosted pilot signal within the second geographical area and substantially only along a boundary between the first and second geographical areas from a directional antenna, wherein the area where

multiple base stations exist reads on the "substantially only along the boundary" and the multiple base stations fulfills the "between the first and second geographical areas."

The Applicant argues Kim fails to teach a directional transmitting antenna. The Examiner respectfully disagrees. The fact that the repeater boosts the pilot signal into a specific area where multiple base stations exist fulfills this limitation. Further, a true omnidirectional antenna does not really exist.

The Applicant argues the combination of Judson fails to teach adjusting the boosted pilot signal to have a signal strength that is substantially less than an intended pilot signal. The Examiner respectfully disagrees. The focusing of the signal energy in one direction implies lowering it in another direction, fulfilling the limitation of "adjusting the boosted pilot signal to have a signal strength within the first geographical area that is substantially less than an intended pilot signal for the first geographical area."

The Applicant makes similar arguments with respect to the remainder of the claims, however, for the same reasons outlined above, the Examiner respectfully disagrees.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

Art Unit: 2617

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bryan J. Fox whose telephone number is (571) 272-7908. The examiner can normally be reached on Monday through Friday 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles N. Appiah can be reached on (571) 272-7904. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Bryan Fox


CHARLES N. APPIAH
SUPERVISORY PATENT EXAMINER